

What is claimed is:

1. (Currently Amended) A cathodic protection compound to protect a metal substrate, comprising:

(a) inherently conductive polymer ~~comprising polyaniline-grafted-lignosulfonic acid~~;

(b) metal particles wherein the metal is less noble than metal of the metal substrate; and

(c) binder,

wherein the amount of inherently conductive polymer is less than 1 weight percent of total solids of the compound and wherein the amount of metal particles is less than 20 weight percent of the total solids of the compound.

2. (Currently Amended) The compound of Claim 1, wherein the amount of inherently conductive polymer ranges from an electrically effective amount to less than 0.8 weight percent of total solids of the compound, and

wherein the inherently conductive polymer comprises a polymer having repeating monomeric units of aniline, thiophene, pyrrole, and phenyl mercaptan.

3. (Currently Amended) The compound of Claim 1, wherein the amount of inherently conductive polymer ranges from 0.14 weight percent to 0.5 weight percent of total solids of the compound, and

wherein the inherently conductive polymer is selected from the group consisting of substituted and unsubstituted polyparaphenylenevinylenes, substituted and unsubstituted polyanilines, substituted and unsubstituted polyazines, substituted and unsubstituted polythiophenes, substituted and unsubstituted polyparaphenylenes, substituted and unsubstituted poly-p-phenylene sulfides, substituted and unsubstituted polyfuranes, substituted and unsubstituted polypyrroles, substituted and unsubstituted polyselenophene, substituted and unsubstituted polyacetylenes, mixtures thereof, and copolymers thereof.

4. (Previously Presented) The compound of Claim 1, wherein the metal particles have an average particle size ranging from about 1 μm to about 25 μm .
5. (Previously Presented) The compound of Claim 1, wherein the metal substrate comprises iron and the metal particles are selected from the group consisting of zinc, aluminum, tin, and combinations thereof.
6. (Previously Presented) The compound of Claim 1, wherein the binder is a flowable material.
7. (Previously Presented) The compound of Claim 6, wherein the flowable material is electrically inactive.
8. (Previously Presented) The compound of Claim 6, wherein the flowable material is electrically active.
9. (Previously Presented) The compound of Claim 8, wherein the flowable material includes electrically active, galvanically inactive materials selected from the group consisting of carbon fibers, carbon particles, carbon nanotubes, and combinations thereof.
10. (Previously Presented) The compound of Claim 1, wherein the weight ratio of total solids of inherently conductive polymer to metal particles can range from about 20:1 to about 40:1.
11. (Previously Presented) A solid concentrate consisting essentially of a blend of inherently conductive polymer particles and anodic metal particles, wherein the inherently conductive polymer particles comprise less than 5 weight percent of the concentrate and wherein the anodic metal particles comprise more than 95 weight percent of the concentrate.

12. (Previously Presented) The concentrate of Claim 11, wherein the metal particles have an average particle size ranging from about 1 μm to about 25 μm .

13. (Previously Presented) The concentrate of Claim 12, wherein the metal particles are selected from the group consisting of zinc, aluminum, tin, and combinations thereof.

14. (Previously Presented) The concentrate of Claim 11, wherein the inherently conductive polymer is doped polyaniline.

15. (Previously Presented) The concentrate of Claim 11, wherein the inherently conductive polymer is polyaniline-grafted-lignosulfonic acid.

16. (Previously Presented) The concentrate of Claim 11, wherein the weight ratio of total solids of inherently conductive polymer to metal particles can range from about 20:1 to about 40:1.

17. (Previously Presented) A method of using a cathodic protection compound for a metal substrate, comprising the steps of:

- (a) selecting a cathodic protection compound of Claim 1, wherein the metal particles are less noble than metal of the metal substrate, and
- (b) applying the cathodic protection compound to the metal substrate.